API Ballot Summary Sheet

8/28/2007

Ballot: **API 2000, 6th Ed., Venting of Atmospheric & Low-pressure Tanks: Ballot 2000-01-07**

Ballot ID: **1134**

Start Date: 5/28/07 **Closing Date:** 7/20/07

Associate: **Roland Goodman**

Coordinator: **Roland Goodman**

Proposal: First ballot for the approval of API 2000, 6th Edition, Venting of Atmospheric and Low-pressure Storage Tanks: Nonrefrigerated and Refridgerated.

VotingCategory

Voter	Interest Category	Company	Comments	Vote Results: Affirmative	Negative	Abstain	Did Not Vote
S. Mohammad Ali	Operator-User	ConocoPhillips	No	X			
Hari Attal	Contractor	Bechtel Corporation	Yes	X			
Tom Bevilacqua	Contractor	Siemens Oil, Gas, & Marine	No				X
Bill Ciolek	Contractor	UOP LLC	No	X			
David Cobb	Contractor	Fluor Enterprises, Inc.	No				X
Roger Danzy	Manufacturer	Dresser Inc.	No	X			
Michael Davies	Manufacturer	Protego (USA), Inc.	No				X
Denis DeMichael	Operator-User	DuPont	Yes		X		
Chip Eskridge	Contractor	Aker Kvaerner/JBEK	Yes	X			
Mark Ewanishin	Operator-User	Shell Canada Ltd.	No				X
Barry Friedman	Contractor	Washington Group International	No	X			
Terry Gallagher	Manufacturer	Chicago Bridge & Iron Company(CB&I)	No				X
Jude Golla	Consultant		No				X
Philip Henry	Contractor	Equity Engineering Group, Inc.	No				X
Steve Khouie	Operator-User		No	X			
Sook-Hyung (Sam) Kwon	Manufacturer	SK Corporation	No	X			
Ying Lai	Contractor	Farris Engineering	No	X			
Haakon Loevaasen	Operator-User	Statoil	No				X
Mushtaq Master	Operator-User	BP Exploration	No				X
Robert McMican	Operator-User	ExxonMobil Research & Engineering	Yes	X			
Dean Miller	Manufacturer	Fike Corporation	No				X
George Milleret	Manufacturer	Myers-Aubrey Company	No				X
Brad Otis	Operator-User	Shell Global Solutions (US) Inc.	Yes	X			
Steven Palmer	Manufacturer	BS&B Safety Systems, L.L.C.	No				X
Michael Porter	Operator-User	Chevron Corporation	No				X
Kyle Roth	Manufacturer	Continental Disc Corporation	Yes	X			
Robert Schwartz	Manufacturer	John Zink Company, LLC	No	X			
Aubry Shackelford	Contractor	Celerity3 Engineering	No				X

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Ballot ID: 1134

Start Date: 5/28/07 **Closing Date:** 7/20/07

Associate: **Roland Goodman**

Coordinator: **Roland Goodman**

Proposal: First ballot for the approval of API 2000, 6th Edition, Venting of Atmospheric and Low-pressure Storage Tanks: Nonrefrigerated and Refridgerated.

	VotingCategory					
Charles Sprague	Manufacturer	Groth Corporation	No			X
John Straitz	Manufacturer	NAO	No			X
Barry Weber	Operator-User	Lyondell Chemical Company	No			X
Colin Weil	Consultant		Yes	X		
Alan West	Manufacturer	Tyco Valves & Controls LP	No	X		
Edward Zamejc	Operator-User	BP America Inc.	Yes	X		

	Affirmative	Negative	Abstain	Did Not Vote
Balloting Totals:	**16**	**1**	**0**	**17**

Total Responses:	**17**	
Total Ballots:	**34**	
Response Rate (Affirmative / Total Ballots):	**47%**	Must be > 50%
Approval Rate (Affirmative / [Affirmative + Negative]):	**94%**	Must be > 67%
Consensus:	**NO**	

API Ballot Comments and Resolution			
Ballot: API 2000, 6th Ed., Venting of Atmospheric & Low-pressure Tanks: Ballot 2000-01-07	Proposal: First ballot for the approval of API 2000, 6th Edition, Venting of Atmospheric and Low-pressure Storage Tanks: Nonrefrigerated and Refridgerated.	Ballot ID: 1134	Date: August 28, 2007

#	1 **Voter Name (Vote)**	2 **Clause No./ Subclause No./Annex** (e.g. 3.1)	3 **Type of Comment**	4 **Comment (justification for change) by the Voting Member**	5 **Proposed change by the Voting Member**	6 **Comment Resolution**
1	Colin Weil (Affirmative)	2	Editorial	Introduction says for "dated references" but only notes edition.	Add relevant dates - but only if really require to be a specific edition.	
2	Colin Weil (Affirmative)	3.1	Technical	Second sentance is not a definition - this should be moved. Other definitions do not start with the word being defined. That said I cannot find anything in the text re-accumulation other than its relation to overpressure!	Delete "accumulation" from the definition. Consider adding an extended clause related to the existing 2nd sentence within clause 4.	
3	Denis DeMichael DuPont (Negative)	3.1	Technical	The new definition is an upgrade over the old, especially the recognition that some tank codes of construction provide design pressures versus MAWP's. However, design pressure needs to be included with the first reference to MAWP. Also, should "applicable codes" be further defined to be associated with the tank design/construction code?	Accumulation is the pressure increase over the maximum allowable working pressure or design pressure of the tank, expressed in pressure units or as a percentage of MAWP or design pressure. Maximum allowable accumulations are normally established by the tank design code for emergency operating and fire contingencies.	
4	Chip Eskridge Aker Kvaerner/JBEK (Affirmative)	3.7	Editorial	Change valve to PV	The pressure increase at the PV inlet above the set pressure, when the PV is relieving.	
5	Denis DeMichael DuPont (Negative)	3.9	Technical	We are defining flow capacity in terms "standard" and "normal" conditions. Do we need to include what those conditions (pressure and temperature) are?		
6	Robert McMican ExxonMobil Research & Engineering (Affirmative)	4.2.2	Technical	The word will after vacuum and overpressure is probably incorrect.	Change word will to may	

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7	Richard Kraus Petroleum Safety Consultants (NonVoter)	4.2.3 5.2.3	Technical	Although I amn a non voter I wish to add the followinf comment.	I do not see any reference under any of the weather sections to the potential for vents to ice up during freezing rain, etc. This is a common occurance in the midwest when raining or sleeting at temperatures just around freezinf. This will cause vents to be inoperable. There should be s caution to manually check abd clean vants when filling/emptying tanks under these conditions	
8	Robert McMican ExxonMobil Research & Engineering (Affirmative)	4.2.3	Technical	The word will after vacuum and overpressure is probably incorrect.	Change the word will to may	
9	Jerry Boldra (NonVoter)	4.2.5.14	Technical	COMMENT: To the novice, the proposed, single sentence is confusing. It says, " . . . may exceed venting . . ." which implies outbreathing to the novice. Yet " . . . during a rainstorm." implies inbreathing.	SUGGESTION: Do not delete the second sentence, which says, "Vapor contraction may cause excessive vacuum". Leave this sentence in . . . it completes the concept which is only "implied" in the first sentence.	
10	Chip Eskridge Aker Kvaerner/JBEK (Affirmative)	4.2.5.14	Editorial	Change venting to thermal inbreathing	Uninsulated tanks with exceptionally hot vapor spaces, above 120F (48.9C), may exceed the thermal inbreathing requirments in this standard during a rainstorm.	
11	Chip Eskridge Aker Kvaerner/JBEK (Affirmative)	4.3.2 Table 1B	Editorial	Cited boiler points should be both be 149C. This is consistant with Table 1A	2nd Row... Boiler Point Greater than or equal to 149C	

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12	Edward Zamejc BP America Inc. (Affirmative)	4.3.2 Table 1B	Technical	Although nothing was changed in Table 1B, there is a consistancy problem within the table and with Table 2B with the 149 degrees C value.	Change the 149 degrees C value is changed to 148.9 degrees C.	
13	Kyle Roth Continental Disc Corporation (Affirmative)	4.3.2 Table 2A, note a (page 9)	Technical	Temperature conversion, 100 deg. F to 55.6 deg C, is incorrect.	Temperature conversion of should be 100 deg. F to 37.8 deg C.	
14	Hari Attal Bechtel Corporation (Affirmative)	4.3.3.1.2 Table 3	Technical	Table 3, footnote-a: Wetted area calculations guidelines do not match with API-521, Table 5 section 5.15.1.1. API 521 Table 5 requires "up to the maximum horizontal diameter or up to the height of 7.6m (25ft) whichever is greater" for Spheres and Spheroids wetted area calculation.	API 521 Table 5 makes more sense.	
15	Jean-Pierre Chaubernard Technip (NonVoter)	4.3.3.2.2	Technical	Paragraph 4.3.3.2.2 page 12, formula(1B) Should read $Nm^3/h = 0.88155 \times QF/L \times SQRT(T/M)$ Instead of $Nm^3/h = 881.55 \times QF/L \times SQRT(T/M)$	See above comment	
16	Colin Weil (Affirmative)	4.4.1.2	Editorial	Clause notes several standards but these are not listed within the bibliography.	Add all referenced (non-normative) documents to bibliography.	
17	Edward Zamejc BP America Inc. (Affirmative)	4.4.1.2	Editorial	It may help clarify to indicate in separate bullet item that lightning is the most likely ignition source for vapors emitted from storage tank vents.	After "most cone roof tanks are not very often in the flammable range" suggest adding a new bullet: "a lightning strike is the most likely ignition source source for vapors emitted from storage tank vents".	

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18	Denis DeMichael DuPont (Negative)	4.4.1.2	Technical	The first paragraph requires (with the use of the term shall) the user to prevent internal deflagration and goes on to provide various means to do that. The next section indicates testing has demonstrated that flame propagation back through a PV is possible. It would seem that warning is telling me that I can not rely only on a PV vent to prevent internal deflagration. Yet, after the initial warning, the text goes on the say that flashback through a PV vent has been rare and then lists the reasons. The guidance in this section is confusing and does not seem to convey what I believe was our original intent when the information on the flash back testing came to light. I thought we had intended to continue to permit the use of a single PV valve but alert the user of this new flashback testing information so that the user could determine if additional safeguards were warranted based the specific application. We also intended to provide some suggested additional safeguards. With that said, I propose the following for consideration. (Negative Ballot)	4.4.1.2 PV valves are recommended for use on atmospheric storage tanks in which liquids with a flash point below 100°F (37.8°C) are stored and for use on tanks containing liquids where the temperature may exceed the flash point or could otherwise contain a flammable vapor space. Although experience has shown PV valves have been effective in preventing flame propagation into tanks, testing has demonstrated that flame propagation into the vapor space through a PV vent is possible. Flash backs through PV vents have been rare and some factors that help explain the low occurrence frequency include: ⎯ the vapor space in most cone roof tanks is not very often within the flammable range; ⎯ lightning strikes will likely occur under cloud cover so that there is a reduced likelihood that a tank would be out-breathing due to thermal expansion; however, a tank could be out-breathing if liquid is entering; ⎯ a lightning strike is almost always preceded by winds that help minimize the size of a flammable cloud near the PV vent. If a tank's vapor space can be within the flammable range, the user shall determine what, if any, additional safeguards are needed to limit the risk for an internal deflagration. Typical	

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					safeguards can include but are not limited to: a) Different tank selection: A different type of tank design can reduce or eliminate the formation of a flammable atmosphere. EXAMPLE Specifying a floating roof tank or a tank that is rated for full vacuum and does not require vacuum venting b) Flame arrestors: The use of a flame arrestor is an effective method to reduce the risk of flame transmission. The user is cautioned that the use of a flame arrestor within the tank's relief path introduces the risk of tank damage from overpressure or vacuum due to plugging if the arrestor is not maintained properly. More information on flame arrestors can be found in NFPA 69, TRbF 20, EN 12874, UL 525 and 33 CFR 154. The user is also cautioned that the flame arrestor will affect the capacity of the venting system and the arrestor and vent manufacturers should be consulted to assess the magnitude of the effects. c) Inert gas blanketing: Inert gas blanketing, when engineered and maintained properly, is an effective means of reducing the potential for a flammable atmosphere to exist inside a tank. The user is cautioned that inerting may introduce an asphyxiation risk, and in sour services can promote formation of pyrophoric deposits.	

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					4.4.1.3 Open vents with a flame-arresting device may be used in place of PV valves on tanks in which liquids with a flash point below 100°F (37.8°C) are stored and for use on tanks containing liquids where the storage temperature might exceed the flash point or could otherwise contain a flammable vapor space.	

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19	Robert McMican ExxonMobil Research & Engineering (Affirmative)	4.4.1.2	Technical	All words in this section except the last two paragraphs do not belong under normal venting.	Make a new section entitled "Consideration for tanks with potentially flammable atmospheres". Move all words except the last two paragraphs from 4.4.1.2 to the new section.	
20	Chip Eskridge Aker Kvaerner/JBEK (Affirmative)	4.4.1.2(b)	Editorial	Add references to Annex D (Bibliography)	NFPA 69, TRbF 20, EN 12874, UL 525, and 33CFR154 should be added to Annex D	
21	Denis DeMichael DuPont (Negative)	4.5.1.2	Technical	The first sentence seems to be incomplete (ie “may result” from what?)	End first sentence after vacuum.	
22	Chip Eskridge Aker Kvaerner/JBEK (Affirmative)	4.5.1.3	Editorial	Add references to Annex D	API 500, TrbF20, NFPA 30, IEC 60079-10 should be added to Annex D	
23	Chip Eskridge Aker Kvaerner/JBEK (Affirmative)	4.5.1.3	Editorial	API 500 is for electrical classification. Are you sure you mean to cite this standard?		
24	Robert McMican ExxonMobil Research & Engineering (Affirmative)	4.5.1.3	Technical	API 500 seems to be the wrong reference. Do we mean API 521?	Use correct reference	
25	Mike Poehlmann Sunoco Pipeline LP (NonVoter)	4.6.121 4.6.1.2.3	Editorial	There are three (3) references on this page to 4.6.1.1.1 which should be changed to 4.6.1.2		

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26	Hari Attal Bechtel Corporation (Affirmative)	5.1	Editorial	This section does not cover definitions of various types of LNG tanks and their venting requirements.	At the end of this section, add following sentence: For definition of various types of LNG tanks and their venting requirments, refer to current edition of NFPA 59A Standard for the Production, Storage, and Handling of Liquefied Natural Gas (LNG).	
27	Denis DeMichael DuPont (Negative)	A.3.1.2	Technical	This paragraph indicates the normal breathing requirements are at standard conditions and that if the actual conditions are different, the vent rates should be corrected back to standard conditions. How many applications are always venting at 60 F or 0 C? Should all applications be corrected for expected temperature and/or pressure extremes? If so, why is this in an Informative Annex? This guidance needs to be clarified. I can't offer any suggestions as I'm not sure what the paragraph was intended to accomplish. (Negative Ballot)		
28	Brad Otis Shell Global Solutions (US) Inc. (Affirmative)	General	Editorial	I done a cursory review to see that key items are addressed (specifically the flame arrestor issue) but I have not reviewed in detail since we are working on ISO-28300 which already is substantially different and I expect API to adopt that standard as soon as it is approved.		